DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
X	X	X	X	X	X

REGISTERED CIVIL ENGINEER — DATE X

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

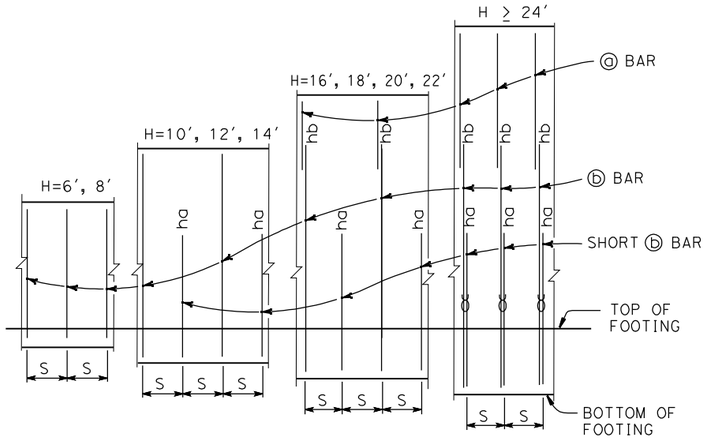
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

TABLE 1: TABLE OF REINFORCING STEEL DIMENSIONS AND DATA

DESIGN H	6′	8′	10′	12′	14′	16′	18′	20′	22′	24′	26′	28′	30′	32′
W	8′- 3"	8′- 6"	9′- 0"	9′- 6"	10′- 0"	10′- 9"	11′- 3"	12′- 0"	13′- 3"	14′- 3"	15′- 9"	16′- 9"	18′- 0"	19′- 9"
C	2′- 9"	2′- 9"	3′- 0"	3′- 3"	3′- 4"	3′- 6"	3′- 9"	4′- 0"	4′- 3"	4′- 9"	5′- 3"	5′- 6"	5′- 9"	6′- 7"
B	5′- 6"	5′- 9"	6′- 0"	6′- 3"	6′- 8"	7′- 3"	7′- 6"	8′- 0"	9′- 0"	9′- 6"	10′- 6"	11′- 3"	12′- 3"	13′- 2"
F PILE FOOTING	1′- 6"	1′- 6"	1′- 6"	1′- 6"	1′- 9"	2′- 0"	2′- 0"	2′- 6"	2′- 9"	2′- 9"	3′- 0"	3′- 3"	3′- 9"	4′- 0"
M	1′- 3"	1′- 6"	1′- 6"	1′- 9"	1′- 10"	2′- 0"	2′- 3"	2′- 6"	2′- 9"	3′- 3"	3′- 9"	4′- 0"	4′- 3"	5′- 1"
N	4′- 0"	4′- 3"	4′- 6"	4′- 9"	5′- 2"	5′- 9"	6′- 0"	6′- 6"	7′- 6"	8′-0"	9′-0"	9′- 9"	10′- 9"	11′- 8"
ROW 1 SPACING	12′- 3"	10′- 3"	8′- 9"	7′- 6"	6′- 3"	5′- 3"	4′- 9"	4′- 0"	3′- 9"	3′- 9"	4′-0"	3′- 9"	3′- 9"	3′- 9"
ROW 2 SPACING	14′- 0"	12′- 9"	11′- 6"	10′- 3"	9′- 3"	8′- 3"	7′- 9"	6′- 6"	7′- 6"	6′- 0"	4′- 0"	4′- 0"	3′- 9"	3′-9"
ROW 3 SPACING									6′- 0"	5′- 3"	5′-0"	4′- 0"	6′- 0"	4′- 0"
ROW 4 SPACING													3′- 9"	3′-9"
STEM WITH HAUNCH, BATTER	0	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	5/8:12	3/4:12	7/8:12	1:12	1:12
STEM WITHOUT HAUNCH, BATTER	0	0	0	0	0	0	0	0	1/4:12	1/4:12	1/2:12	3/4:12	3/4:12	3/4:12
ⓐ BARS						#7 @ 15	#7 @ 12	#7 @ 12	#8 @ 12	#6 @ 6	#6 @ 6	#6 @ 6	#8 @ 9	#9 @ 9
ⓑ BARS	#8 @ 12	#7 @ 9	#7 @ 6	#7 @ 6	#7 @ 6	#9 @ 7.5	#9 @ 6	#10 @ 6	#10 @ 6	#8 @ 6 ϑ	#8 @ 6 ϑ	#8 @ 6 ϑ	#10 @ 9 ϑ	#11 @ 9 ϑ
ha			5′- 0"	6′- 0"	7′- 0"	7′ - 0"	6′- 0"	7′- 0"	7′- 0"	7′- 6"	8′- 6"	9′- 3"	15′- 0"	11′- 3"
hb						11′ - 6"	12′- 0"	13′- 3"	16′- 0"	15′- 6"	17′- 6"	18′- 9"	21′- 0"	20′- 9"
ⓒ BARS	#6 @ 12	#6 @ 9	#6 @ 6	#6 @ 6	#6 @ 6	#8 @ 7.5	#8 @ 6	#9 @ 6	#9 @ 6	#10 @ 6	#10 @ 6	#11 @ 6	#10 @ 9 ϑ	#10 @ 9 ϑ
ⓓ BARS	#5 @ 12	#5 @ 9	#5 @ 12	#5 @ 12	#5 @ 12	#6 @ 15	#5 @ 12	#5 @ 12	#6 @ 12	#6 @ 12	#6 @ 12	#7 @ 12	#6 @ 9	#9 @ 9
ⓔ BARS	10-#7 @ 6	8-#7 @ 7	10-#6 @ 6	8-#6 @ 6	6-#6 @ 12	6-#5 @ 12	6-#5 @ 12	6-#5 @ 15	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18
ⓕ BARS	10-#8 @ 7	10-#8 @ 6	10-#7 @ 8	12-#6 @ 7	8-#7 @ 11	7-#6 @ 13	8-#6 @ 12	8-#5 @ 15	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18

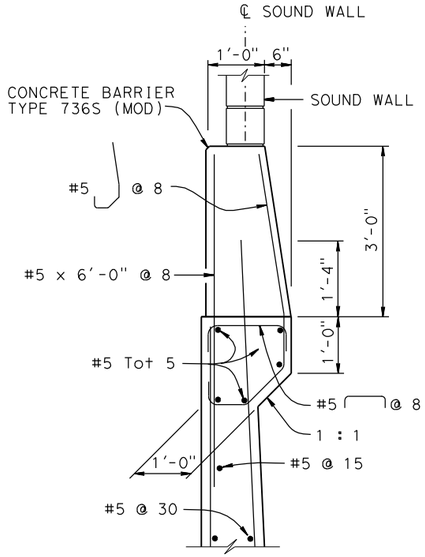
NOTES:

1. All piles are class 90 concrete piles.
2. Pile batter shown are 1:3.
3. Minimum distance between center pile and edge of footing is 1′-6".
4. Lateral resistance of each pile:
   30 kip for strength limit states.
   40 kip for extreme limit states.
5. Maximum spacing between piles is shown in the table. Reduce to suit the length of footing.
6. Minimum distance between any two piles is 3′-0". Reduce to suit the length of footing.
7. For sound wall and retaining wall architectural finish or texture, see details elsewhere in Project Plans.
8. For details not shown and drainage notes, see B3-5
9. Footing cover, 1′-6" minimum.
10. For sound wall and Barrier reinforcements see "SOUND WALL - MASONRY BLOCK WITH BARRIER ON RETAINING WALL" sheets.
11. For H=6′ through 14′, extend ⓑ bars into Barrier for stem with haunch.
12. For H≥16′, extend ⓐ bars into Barrier for stem with haunch.

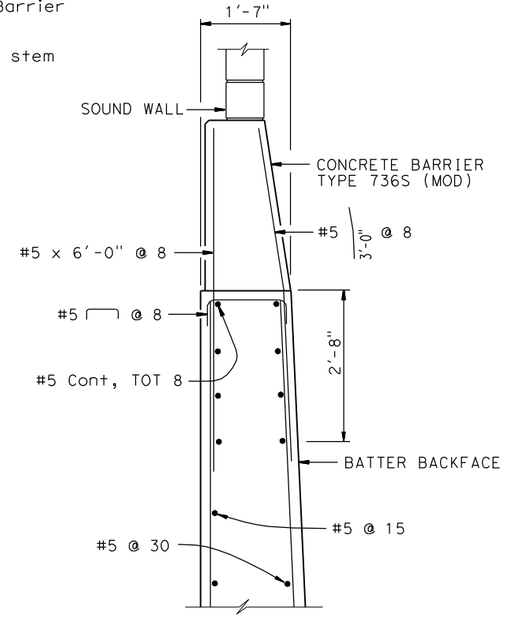


ELEVATION
No Scale

NOTE:
"ha" and "hb" above ⓑ bars indicate distance from top of footing to upper end of ⓑ bars, see table.
"S" is ⓑ bar spacing, see table.
ϑ : 2 bar bundle



DETAIL A
¾ = 1′-0"



OPTIONAL DETAIL A
¾ = 1′-0"

For Details not shown, see "DETAIL A"

NOTE:
Total ⓔ bars and ⓕ bars shown are total number of top and bottom bars combined.

LEGEND:
ϑ : 2 bar bundle

DESIGN DATA

Design: AASHTO LRFD Bridge Design Specifications 4th edition with California Amendments

WS: 33 psf on Sound Wall and Barrier

LS: Varied surcharge on level ground surface

CT: 54 kip maximum traffic impact loading evenly distributed over 10 feet at top of the barrier and 1:1 distribution down and outward

EQE: Mononabe-Okabe Method
K_h = 0.3
K_v = 0.0

Soil: Ø = 34°
γ = 120 pcf

Reinforced Concrete: f′c = 3600 psi
fy = 60,000 psi

Load Combinations and Limit States

Service I	Q=1.00DC+1.00EV+1.00EH+1.00LS+0.30WS
Service II	Q=1.00DC+1.00EV+1.00EH+1.00WS
Strength I	Q=αDC+βEV+1.50EH+1.75LS Q=1.25DC + 1.35EV + 0.90EH +1.75LS (for piles at heel)
Strength III	Q=αDC+βEV+1.50EH+1.40WS
Strength V	Q=αDC+βEV+1.50EH+1.35LS+0.40WS
Extreme I	Q=1.00DC+1.00EV+1.00EH+1.00EQD+1.00EQE
Extreme II	Q=1.00DC+1.00EV+1.00EH+1.00CT

Where:

Q: Force Effects
α: 1.25 or 0.90, Which ever Controls Design
β: 1.35 or 1.00, which ever Controls Design
DC: Dead Load of Structure Components
EV: Vertical Earth Fill Pressure
LS: Live Load Surcharge
EQE: Seismic Earth Pressure
EQD: Soil and Structure Components Inertia. Soil inertia ignored for stem design
WS: Wind Load on Sound Wall and Barrier
CT: Vehicular Collision Force

STANDARD DRAWING
FILE NO. xs14-320-1
APPROVAL DATE July 2011

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

BRIDGE NO.
X
POST MILE
X

X

RETAINING WALL TYPE 1SWBP-DETAILS NO. 1

DS OSD 2147A (ENGLISH STANDARD DRAWING "XS" BORDER REV. (02-02-11)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: X
PROJECT NUMBER & PHASE: X
CONTRACT NO.: X

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
				X	X

FILE => $REQUEST

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME